REMARKS

This paper is submitted in response to the pending Office Action mailed on August 21, 2008. Because this Response is submitted with a certificate of electronic filing in compliance with 37 C.F.R. §1.8 on or before the shortened period for reply set to expire on **November 21, 2008**, this Response is timely filed.

I. STATUS OF THE CLAIMS

Prior to this Response, claims 1 to 10 were pending and at issue. By this Response, independent claim 1 has been amended, none of the pending claims have been canceled and no new claims have been added. Claims 1 to 10 remain pending and at issue in this application.

While Applicants believe that no additional fees are due in connection with this application, Applicants direct the Office to charge **Deposit Account No. 23-1925 (11955-00008)** for any fees deemed owed during the pendency of this application, excluding the issue fee.

II. REJECTIONS

The Office Action rejects: claim 1 under 35 U.S.C. §112, first paragraph as allegedly failing to comply with the written description requirement; claims 1, 2, 5 to 7 and 9 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,497,039 to Blaettner et al. ("*Blaettner*") in view of U.S. Patent No. 5,497,039 to Yamaguchi ("*Yamaguchi*") and further in view of U.S. Patent No. 4,099,104 to Muller ("*Muller*"); claims 3 and 4 under 35 U.S.C. §103 as obvious over *Blaettner* in view of *Yamaguchi* and *Muller* and further in view of U.S. Patent No. 6,708,388 to Yamashita et al. ("*Yamashita*"); claim 8 under 35 U.S.C. §103 as obvious over *Blaettner* in view of *Yamaguchi* and *Muller* and further in view of Japanese patent reference JP 09-163708 to Nitta et al ("*Nitta*"); claim 10 under 35 U.S.C. §103 as obvious over *Blaettner* in view of *Muller* and further in view of U.S. Patent No. 4,296,341 to Guttinger ("*Guttinger*"); and claim 1 alternatively under 35 U.S.C. §103 as obvious over *Blaettner* in view of U.S. Patent No. 6,568,066 to Furuya et al. ("*Furuya*").

A. REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

Applicant respectfully traverses the rejection of claim 1 as allegedly failing to comply with the written description requirement. In particular, the rejection of claim 1 appears to be based on alleged differences between the figures and the language, elements and/or limitations recited by the claims. Applicant wishes to point out that the equilibrium state illustrated in FIG 1A shows one possible configuration or alignment of the disclosed proportional rotary torque. As indicated by the Office Action, rotation or movement of the rotor may be prevented at the equilibrium state shown in FIG. 1; however, as shown in FIGS. 4 and 5, the proportional rotary torquer is configured to operate throughout a range of positions except the two angular positions where the center line of the two salient poles of the rotor and the two permanent magnets coincide (*see* FIG. 4.) Applicant submits that it is the claims and not the figures which determine the scope of the invention and it is improper to read a limitation within the specification into the claims.

Furthermore, as will be understood, the proportional rotary torquer recited by independent claim 1 is configured to control the switching condition of a valve via rotation to a predetermined angular position. For example, the disclosed proportional rotary torquer may be utilized to adjust the air intake of a reciprocating engine by rotating or changing position to the predetermined angular position. In other words, the disclosed proportional rotary torquer and rotor do not continuously rotate during operation; therefore, the rotor and attached wire would not continuously rotate and the wire does not restrict the rotation of the rotor and/or the proportional rotary torquer. For at least these reasons, Applicant submits that claim 1 is in the proper form and is in compliance with the written description requirement. Reconsideration and withdrawal of the pending rejection to claim 1 is respectfully requested.

B. REJECTION UNDER 35 U.S.C. §103

Applicant respectfully traverses the rejection of claims 1 to 10 as obvious over the combination of *Blaettner*, *Yamaguchi* and *Muller*, either alone or in combination with one or more of *Nitta* and/or *Guttinger.* In particular, amended independent claim 1 recites, in relevant part, a proportional rotary torquer that includes a rotor having a rotor core which two salient poles are formed at, and one or more rotor coils are

wound around, wherein the permanent magnet has two circumferential end portions and one circumferential center portion, and the radial thickness of the circumferential end portion is from 90% to 95% of the radial thickness of the circumferential center portion, wherein the distance from the radial outline of the center portion of each of the salient pole to the rotation center of the rotor core is not more than 99% of the distance from the radial outline of the circumferential end portion of each of the salient pole to the rotation center of the rotor core, and wherein the angle between the line connecting one of the circumferential outlines of the salient pole and the rotation center of the rotor core and the line connecting the other circumferential outline of the same salient pole and the rotation center of the rotor core is not less than 100 degrees. The disclosed configuration of the rotor, and in particular salient pole(s) relative to the rotation center, ensures that the magnetic flux does not concentrate at the circumferential center portion of the salient pole(s) and magnetic flux can be efficiently generated from the vicinity of the circumferential end portions of the salient poles. Specifically, (1) the two permanent magnets each include two circumferential end portions carried between a circumferential center portion, wherein the radial thickness of each of the two circumferential end portions is 90 to 95% of the circumferential center portion (compare thickness A in FIG. 3B with thickness B in FIG. 3B); (2) the distance R3 (in FIG. 3A) between the rotational center of the rotor core and the radial outline of each center portion is not more than 99% the distance R4 (in FIG. 3A) between the rotational center of the rotor core and the radial outline of each of the circumferential end portions; and (3) the angle (indicated by the numeral K in FIG 3A) between the line connecting one of the circumferential outlines of the salient pole and the rotation center of the rotor core and the line connecting the other circumferential outline of the same salient pole and the rotation center of the rotor core is not less than 100 degrees. Satisfaction or providing these elements results in the generation of a substantially constant electro-magnetic torque within a predetermined angular range in response to a substantially constant exciting current such that the magnitude of the generated torque is linearly proportional to the magnitude of the exciting current.

Blaettner, contrary to the characterization set forth on page 6, lines 5 to 7 and lines 11 to 13, does not disclose a rotor core having two salient poles much less a

pair of permanent magnet each having two circumferential end portions and one circumferential center portion, and the radial thickness of the circumferential end portion is from 90% to 95% of the radial thickness of the circumferential center portion. *Blaettner* simply discloses a rotor core 28 having a plurality of salient poles array thereabout. Moreover, *Blaettner* is completely silent regarding the relative thickness between each of the two circumferential end portions and one circumferential center portion of each salient pole array about the rotor 28. Thus, *Blaettner* does not teach, disclose or even suggest that the radial thickness of the circumferential end portion is from 90% to 95% of the radial thickness of the circumferential center portion, as recited by independent claim 1.

Yamaguchi does not teach, disclose or even suggest the elements missing from *Blaettner*. *Yamaguchi* does not disclose a rotor core having two salient poles much less a pair of permanent magnet each having two circumferential end portions and one circumferential center portion, and the radial thickness of the circumferential end portion is from 90% to 95% of the radial thickness of the circumferential center portion. *Yamaguchi* discloses three salient poles, as opposed to the two claimed, and makes no mention of the relative thickness between each of the two circumferential end portions and one circumferential center portion of each salient pole array about the rotor 5. Similarly, *Yamaguchi* does not disclose the distance from the radial outline of the center portion of each of the salient pole to the rotation center of the rotor core is not more than 99% of the distance from the radial outline of the circumferential end portion of each of the salient pole to the rotation center of the rotor core. In fact, as with relative thicknesses discussed above, *Yamaguchi* is silent regarding that the distance between the radial outline of the center portion of each of the salient pole to the rotation center of the rotor core is not more than 99% of the distance from the radial outline of the circumferential end portion of each of the salient pole to the rotation center of the rotor core. *Yamaguchi* simply discloses that the ratio b-to-a between the circumferential end portions is less than 0.8 (80%). Thus, the ratio or percentage disclosed by *Yamaguchi* is based on an unrelated distance between different circumferential end portions and the length of one of the circumferential end portions as opposed to the claimed distance recited by independent claim 1.

Muller does not teach, disclose or even suggest the elements missing from *Blaettner* and *Yamaguchi*. The Office Action at page 7, lines 11 to 18, alleges that *Muller* discloses an angle between a line connecting one of the circumferential outlines of the salient pole and the rotation center of the rotor core and the line connecting the other circumferential outline of the same salient pole and the rotation center of the rotor core is not less than 100 degrees. However, the Office Action simply identifies FIG. 10 of *Muller* and relies on hindsight reconstruction to provide the details lacking from the relied upon figure. Moreover, of the disclosure of *Muller* further fails to provide the disclosure lacking from the relied upon FIG. 10. Thus, *Muller* fails that the angle between the line connecting one of the circumferential outlines of the salient pole and the rotation center of the rotor core and the line connecting the other circumferential outline of the same salient pole and the rotation center of the rotor core is not less than 100 degrees.

None of the relied upon references provides the teaching or disclosure missing from *Blaettner*, *Yamaguchi* and *Muller*. For example, *Nitta,* like *Yamashita*, is simply concerned with the configuration or the permanent magnets and does not disclose the claimed configuration of the rotor and associated salient pole(s). *Guttinger* discloses elastic members and is silent regarding the claimed configuration of the rotor and associated salient pole(s).

Because none of the cited references discloses or even suggests all of the elements recited by independent claim 1, no combination or modification of these references will include or provide these missing elements. Thus, any of the relied upon combinations of *Blaettner, Yamaguchi* and *Muller*, either alone or in combination with one or more of *Nitta* and/or *Guttinger*, will be insufficient an unable to establish a *prima facie* case of obviousness. For at least these reasons, Applicant submits that claims 1 to 10 are patentable over the cited references and respectfully requests withdrawal of the pending rejections.

III. CONCLUSION

For the foregoing reasons, Applicant submits that the above-identified patent application is now in condition for allowance and earnestly solicits reconsideration of

same. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting prosecution of this application.

Respectfully submitted,

BRINKS HOFER GILSON & LIONE

Dated: **November 21, 2008**

BY: /Matthew T. Ridsdale/
Matthew T. Ridsdale
Reg. No. 56,832
Cust. No. **00757**
Direct: (312) 245-5311